WHAT IS CLAIMED IS:

1. A method, comprising:

analyzing a plurality of images which includes a specified desired feature therein to select a plurality of selected features; and

automatically forming a model for further recognition of said specified feature , using said selected features.

2. A method as in claim 1, wherein said analyzing comprises automatically detecting features within said plurality of images.

3. A method as in claim 2, further comprising clustering among said features which are automatically detected by vector quantizing said features to reduce the total number of detected features.

4. A method as in claim 3,wherein said clustering also includes moving said features to combine similar features which are spatially offset.

5 . A method as in claim 1, wherein said automatically determining a model comprises

probabilistically estimating which of the features are most informative for the model.

6. A method as in claim 5, wherein said automatically determining comprises assessing a joint probability function based on part appearance and shape.

7. A method as in claim 5, further comprising assembling a matrix of feature candidate positions indicating possible relevant parts, and statistically assessing whether said relevant parts are likely to be useful.

8. A method as in claim 6, wherein said joint probability function is estimated using expectation maximization.

9. A method as in claim 1, a further comprising forming a model using a plurality of recognized parts.

10. A method as in claim 9, wherein said forming a model includes an iterative process which determines if a change from one part to another part improves the result of the model.

11. A method, comprising:

automatically analyzing an image to find features therein;

grouping said features with other similar features to form clustered features;

statistically analyzing said features using expectation maximization, to determine which of said features are statistically most relevant; and

forming a model using the statistically most relevant features.

12. A method as in claim 11, wherein said automatically analyzing comprises using an interest operator on a plurality of images.

13. A method as in claim 11, wherein said grouping features comprises vector quantizing said features and grouping similar quantized features.

14. A method as in claim 13, wherein said grouping features further comprises spatially moving said features to group features which are different but spatially separated.

15. A method as in claim 11 wherein said statistically analyzing comprises estimating which of the features are actually most informative of the desired item to be recognized.

16. A method as in claim 15, wherein said statistically analyzing comprises establishing a correspondence between homologous parts across the training set of images.

17. An article comprising:

a machine-readable medium which stores machine-executable instructions, the instructions causing a machine to:

automatically analyze a plurality of training images which includes a specified desired feature therein, to select a plurality of selected features; and

automatically form a model for further recognition of said specified feature , using said selected features.

18. An article as in claim 1, further comprising instructions to vector quantize said features to reduce the total number of detected features.

19. An article as in claim 1, wherein said automatically determining a model further comprising instructions to probabilistically estimating which of the features are most informative for the model.

20. An article as in claim 1, further comprising instructions to assemble a matrix of feature candidate positions indicating possible relevant parts, and statistically assess whether said relevant parts are likely to be useful.

21. A method as in claim 6, wherein said joint probability function is estimated using expectation maximization.

22. An article as in claim 1, further comprising instructions to form a model using a plurality of recognized parts.

23. An apparatus, comprising:

a computer, forming:

a plurality of feature detectors, reviewing images to detect parts in the images, some of those parts will

correspond to the foreground as an instance of a target object class, and other parts not being an instance of the target object class, as part of the background;

a hypothesis evaluation part, that evaluates candidate locations identified by said plurality of feature detectors, to determine the likelihood of a feature corresponding to an instance of said target object class.

24. An apparatus as in claim 23, wherein said evaluation part operates by:

defining the parts as part of a matrix; and

assigning variables representing likelihood whether foreground or background to the parts in the matrix.

25. An apparatus as in claim 23, further comprising

classifying the images into the classes of whether the object is present (c1) or whether the object is absent (c0) by choosing the class with the maximum a posteriori probability.

26. A method comprising:

reviewing images to detect specified parts in the images;

assigning a variable that defines some of those parts

corresponding to the foreground as an instance of a target object class, and other parts not being an instance of the target object class, as part of the background, said assigning including evaluating candidate locations identified by said plurality of feature detectors, to determine the likelihood of a feature corresponding to an instance of said target object class.

27. A method as in claim 26, wherein said assigning comprises:

defining the parts as part of a matrix; and

assigning variables representing likelihood whether foreground or background to the parts in the matrix.

28. A method as in claim 27, wherein said assigning comprises

classifying the images into the classes of whether the object is present or whether the object is absent by choosing the class with the maximum a posteriori probability.